Attorney's Docket No. 031456/259348 PATENT

In The United States Patent And Trademark Office

Appl. No.:	10/661,848	Confirmation No.: 8549
Applicant(s):	Moehlenbrock et al.	
Filed:	September 12, 2003	
Art Unit:	1772	
Examiner:	Walter Aughenbaugh	
Title:	IMPROVED PACKAGING FILMS AND METHODS FOR PRODUCING THE SAME	

Docket No.: 031456/259348
Customer No.: 00826

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APPEAL BRIEF TRANSMITTAL
(PATENT APPLICATION – 37 C.F.R. § 41.37)

1. Transmitted herewith is the APPEAL BRIEF in this application, with respect to the Notice of Non-Compliant Appeal Brief dated November 28, 2007.

2. ☐ Applicant claims small entity status.

3. Pursuant to 37 C.F.R. § 41.20(b)(2), the fee for filing the Appeal Brief is:
   - ☐ small entity $250.00
   - ☐ other than small entity $500.00

   Appeal Brief fee due

   - ☐ Fee is Enclosed
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REVISED APPEAL BRIEF UNDER 37 CFR § 41.37

This Revised Appeal Brief is filed in order to respond to the Notice of Non-Compliant Appeal Brief dated November 28, 2007.

1. ***Real Party in Interest.***

The real party in interest in this appeal is Cryovac, Inc., the assignee of the above-referenced patent application.

2. ***Related Appeals and Interferences.***

There are no related appeals and/or interferences involving this application or its subject matter.

3. ***Status of Claims.***

Claims 1-6 and 8-17 are pending. Claims 7 and 18-23 are canceled. Claims 1-6 and 8-17 have been finally rejected. The rejections of Claims 1-6 and 8-17 are hereby appealed.

4. ***Status of Amendments.***

All amendments filed in the application have been entered.

5. ***Summary of Claimed Subject Matter.***

The present application relates to a multilayer packaging film for packaging fresh produce or other products requiring a controlled atmosphere within the package. The packaging film is permeable to oxygen, although at least one layer of the film is formed from an oxygen-impermeable composition. Outer layers of the film are heat-sealable, being formed from a heat-sealable composition.

The invention addresses the problems associated with packaging fresh produce, wherein the presence of too much oxygen in the headspace of the package leads to oxidation and bacterial growth, while too little oxygen leads to anaerobiosis, causing spoilage and fermentation (see paragraph bridging pp. 1 and 2). The multilayer packaging film of the invention is designed to provide oxygen permeability of a controlled level, while avoiding the expense and problems associated with mechanical perforation of films used in the prior art (p. 2, lines 14-24). At the same time, the multilayer packaging film has its outer surfaces formed by the layers of heat-sealable composition so that the film can be heat-sealed to itself to form a form-fill-seal pouch or the like (p. 24, lines 2-12, and Figures 5 and 6).

With reference to Figure 1, independent Claim 1 is drawn to an oxygen-permeable multilayer film **10** comprising an oxygen-permeable first heat-sealable outer layer **14**, an oxygen-permeable second heat-sealable outer layer **16**, and at least one oxygen-permeable intermediate microporous layer **12** disposed between the first and second heat-sealable outer layers. The first and second heat-sealable outer layers **14, 16** are independently formed from heat sealable composition comprising at least one of polyolefin, ethylene vinyl acetate, ethylene methyl acrylate, ethylene butyl acrylate, ethylene methyl acid and ionomer as a primary polymer, wherein the primary polymer is present in the heat sealable composition in an amount of at least

about 20 weight percent. The intermediate microporous layer is formed from an oxygen impermeable composition and is free of particulate filler. (See the specification at p. 9, lines 10-28; p. 13, lines 22-23; p. 14, lines 21-25; p. 15, lines 17-19.)

The specification describes that an "outer layer" as claimed refers to any film layer having only one of its principal surfaces directly adhered to another layer of the multilayer film (p. 7, lines 21-22). An "oxygen impermeable" composition is one having an oxygen permeability that is the same as or lower than that of the heat sealable composition when both are formed into comparable articles such as nonporous films (p. 9, lines 19-22).

With reference to Figure 2, independent Claim 10 is drawn to an oxygen-permeable multilayer film comprising an oxygen-permeable first heat-sealable outer layer **14**, an oxygen-permeable second heat-sealable outer layer **16**, an oxygen-permeable center layer **18**, an oxygen-permeable first intermediate microporous layer **12** disposed between the first heat-sealable outer layer and the center layer, and an oxygen-permeable second intermediate microporous layer **20** disposed between the second heat-sealable outer layer and the center layer. The first and second heat-sealable outer layers **14, 16** and the center layer **18** each independently comprises a heat sealable composition as previously described. The first and second intermediate microporous layers **12, 20** each independently comprises an oxygen impermeable polymer composition and is free of particular filler as previously described. (See p. 17, line 29 through p. 18, line 7.)

With reference to Figures 1 and 6, independent Claim 14 is drawn to a package **66** comprising (a) an oxygen-sensitive product (shown as product **52** in Fig. 5), and (b) an oxygen-permeable multilayer film comprising (i) an oxygen-permeable first heat-sealable outer layer **14** formed from a heat sealable composition, (ii) an oxygen-permeable second heat-sealable outer layer **16** formed from a heat sealable composition, and (iii) at least one oxygen-permeable intermediate microporous layer **12** disposed between the first and second heat-sealable outer layers. The heat-sealable composition is as previously described. The intermediate microporous

layer is formed from an oxygen impermeable composition and is free of particulate filler. (See p. 23, line 27 through p. 24, line 29.)

6. ***Grounds of Rejection to be Reviewed on Appeal.***

The issue to be reviewed on appeal is whether Claims 1-6 and 8-17 are unpatentable under 35 U.S.C. 103(a) over U.S. Patent No. 6,114,024 to Forte in view of U.S. Patent No. 4,910,032 to Antoon, Jr.

7. ***Argument.***

Claims 1-6 and 8-17:

Forte discloses a film having at least five layers with a structure of C:A:B:A:C. The "B" layer is a microporous core layer containing at least one thermoplastic polymer and at least one particulate filler. The "A" layers are adhesive layers. The outer "C" layers are described as "monolithic" layers containing a hydrophilic polymeric resin capable of absorbing and desorbing moisture and providing a barrier to fluids and microorganisms. Forte specifically describes that breathability of the film is a key objective (col. 1, lines 10-13; col. 3, lines 12-15). Such breathability requires the ability to pass water vapor and oxygen at moderate to high transmission rates (col. 1, lines 16-20).

Antoon, Jr. discloses a controlled-atmosphere container for fresh produce or flowers. The container has a first panel that is substantially impermeable to oxygen and CO_2 but permeable to water vapor (col. 2, lines 4-5), and a second panel of microporous film that is gas-permeable but substantially impermeable to water vapor (col. 1, line 68 through col. 2, line 3). The first panel can comprise cellophane, polyurethane, a crosslinked silicone membrane, or a silicone-coated microporous film (col. 3, lines 14-17).

The final Office Action of December 28, 2006, repeating the rejections in the Office Action of July 27, 2006, asserted that it would have been obvious to combine Antoon, Jr. with

Forte, and specifically that it would have been obvious to substitute the silicone-coated microporous film of Antoon, Jr. for the "B" layer of Forte. With such substitution, according to the Office Action, the modified Forte film structure would have all of the limitations of the present claims.

Applicant respectfully submits this is erroneous, because (1) Forte and Antoon, Jr. would not have been combined in this manner, and (2) even if so combined, the modified Forte structure *still* would fail to include all of the limitations of the claims.

(1) Forte and Antoon, Jr. Would Not Have Been Combined

Forte is directed to a multi-layer film that is designed to be "breathable". According to Forte's own definition, "[t]he gasses most commonly used to demonstrate a film's breathability are water vapor, sometimes referred to as moisture vapor, and oxygen." (Col. 1, lines 17-19.) Thus, it is clear that a film must be permeable to water vapor and oxygen in order to be considered "breathable" by Forte.

Because of this fact, it is submitted that Forte and Antoon, Jr. would not have been combined as asserted. Forte discloses a film having at least five layers with a structure of C:A:B:A:C. The "B" layer is a microporous core layer containing at least one thermoplastic polymer and at least one particulate filler. The "A" layers are adhesive layers. The outer "C" layers are described as "monolithic" layers containing a hydrophilic polymeric resin capable of absorbing and desorbing moisture and providing a barrier to fluids and microorganisms. (Col. 3, lines 29-47.)

Antoon, Jr. discloses a controlled-atmosphere container for fresh produce or flowers. The container has a *first* panel that is substantially *impermeable to oxygen* and CO_2 but permeable to water vapor (col. 2, lines 4-5), and a *second* panel of microporous film that is gas-permeable but substantially impermeable to water vapor (col. 1, line 68 through col. 2, line 3). The *first* panel can comprise cellophane, polyurethane, a crosslinked silicone membrane, or a *silicone-coated microporous film* (col. 3, lines 14-17).

The *second* panel is a microporous uniaxially oriented *filled* polyolefin such as polypropylene (col. 2, lines 28-29).

As the Examiner concedes, Forte fails to disclose the "B" layer of his structure as being an oxygen-permeable microporous film formed from an oxygen impermeable composition and being free of particulate filler as required by each of independent Claims 1, 10, and 14. However, the Examiner asserts that Antoon, Jr. discloses such an unfilled microporous, oxygen-permeable film, and that it would have been obvious to modify Forte's structure to substitute Antoon, Jr.'s film for the "B" layer in Forte's structure. (Office Action of July 27, 2006, pp. 2-4.)

Applicant respectfully submits this is erroneous. A person of ordinary skill in the art considering Antoon, Jr.'s disclosure would have understood that the silicone-coated microporous film described therein as "substantially oxygen-**impermeable**" would be a poor choice for use in Forte's multilayer film where breathability to water vapor and oxygen is a key objective (see col. 1, lines 17-19, and col. 3, lines 12-13 of Forte). Antoon, Jr.'s silicone-coated microporous film does not fit this requirement because it is substantially oxygen-impermeable. Therefore, there would not have been any motivation to use Antoon, Jr.'s silicone-coated microporous film as the "B" layer of Forte's multilayer breathable film. Indeed, there would have been a strong *disincentive* to use it. Accordingly, the combination of Forte and Antoon, Jr. would not have been made.

For at least this reason, the rejections are improper and should be reversed.

(2) The References, Even If Combined, Fail to Teach the Claimed Invention

Furthermore, even if the references were combined as asserted in the Office Action, the resulting multi-layer film would not include all of the limitations of the claims. As noted, each of independent Claims 1, 10, and 14 requires *inter alia* a microporous film that is oxygen-permeable and that is free of particulate filler. As noted, Forte's "B" layer is a *filled* microporous film, which fails to meet the claim, as the Examiner concedes.

Antoon, Jr. discloses two different microporous films: (1) a silicone-coated microporous film that is substantially *impermeable to oxygen* (see col. 2, lines 24-25, and col. 3, lines 14-15); and (2) a microporous uniaxially oriented *filled* polyolefin such as polypropylene (col. 2, lines 28-29). Contrary to the Office Action, there is not the slightest suggestion in Antoon, Jr. of any oxygen-permeable microporous film that is free of particulate filler. Antoon, Jr. specifically states that fillers "that can be used in the microporous films employed in this invention should be inorganic and inert to the polymer . . ." (col. 4, lines 18-20). The Advisory Action of April 11, 2007, in its Response to Arguments, attempts to suggest that the phrase "can be used" means that not all microporous films used in Antoon, Jr.'s film have to include filler. The Advisory Action states:

> "Applicant has failed to recognize that microporous films are disclosed as suitable for two distinct layers of Antoon, and that Antoon requires filler as a component of the film only for the CAP film, which is not the layer that is relied upon in the rejection of record (the water vapor permeable film as discussed above). Silicone-coated microporous film are only taught by Antoon as being suitable for the water vapor permeable film. Furthermore, Antoon does not require that silicone-coated microporous film comprise filler. The film taught by Forte and Antoon as proposed in the rejection of record results in a film that is free of filler because Antoon does not teach that the water vapor permeable film comprises filler." (Advisory Action p. 3.)

The rejections premised on this argument are incorrect in two respects:

(1) First, even if the silicone-coated microporous film of Antoon were in fact free of particulate filler (which is disputed by Applicant), Antoon clearly describes it as being oxygen-**impermeable**. See col. 2, lines 4-5, and col. 3, lines 14-17, where it is indicated that silicone-coated microporous films are an alternative to cellophane as a water vapor-permeable/oxygen-

impermeable film. Thus, if the rejection is premised on modifying Forte's film to include Antoon's silicone-coated microporous film, then the resulting film fails to meet the limitations of the independent claims, which require a microporous film that is oxygen-**permeable** and that is free of particulate filler.

(2) Second, it is not true that filler is described in Antoon, Jr. solely in connection with the oxygen-permeable microporous film. As noted, Antoon, Jr. indicates that fillers "that can be used in the microporous **films** employed in this invention should be inorganic and inert to the polymer . . ." (col. 4, lines 18-20). The plural usage of "films" refers to both the water vapor-permeable/oxygen-impermeable silicone-coated microporous film and the oxygen-permeable/water vapor-impermeable filled microporous film. The Examiner has not pointed to a *single* explicit statement in Antoon, Jr. that unambiguously suggests that an unfilled oxygen-permeable microporous film is taught by Antoon's disclosure. This is understandable because there is no such statement in Antoon, Jr.

In any event, neither the filled oxygen-permeable microporous film of Antoon, Jr., nor the (imagined) unfilled silicone-coated microporous film of Antoon, Jr. meets the required microporous film that is oxygen-**permeable** and that is free of particulate filler present in each of the independent Claims 1, 10, and 14. Therefore, no combination of Forte and Antoon, Jr. would have provided the invention as claimed in Claims 1, 10, and 14.

Additionally, the proposed modified film of Forte also lacks the outer layers of heat-sealable composition as claimed. Each of the independent claims includes the limitations that the heat-sealable composition of the outer layers comprises at least one of polyolefin, ethylene vinyl acetate, ethylene methyl acrylate, ethylene butyl acrylate, ethylene methyl acid and ionomer as a primary polymer. The independent claims further recite that the primary polymer is present in the heat sealable composition in an amount of at least about 20 weight percent.

Forte does not teach or suggest heat-sealable outer layers formed of such a heat-sealable composition. Forte teaches that the outer monolithic "C" layers of his film comprise a hydrophilic polymeric resin (col. 6, lines 45-47). Specific examples of such resins are cited as

polyesters, polyamides, and grades of polyvinyl alcohol and ethyl vinyl alcohol (col. 6, lines 55-59). Also cited are commercial products such as Pebax®, Hytrel®, and Eastman resins (col. 6, lines 60-67). The Pebax® resins are polyether block amides (PEBA), and the Hytrel® resins are polyester elastomers. Although detailed information on the Eastman 14776 resin could not be obtained, this material is believed to be a copolyester (see U.S. Patent No. 6,730,057 at col. 12, lines 26-31).

While the above-listed polymers recited at column 6 of Forte are clearly different from the primary polymers as presently claimed, the Advisory Action of June 21, 2006, at page 3, asserts that Forte elsewhere teaches that the outer "C" layers can comprise linear low-density polyethylene (a polyolefin), citing col. 7, lines 1-18. With respect to the outer monolithic layers, that passage actually states that the outer layers can include a surface-smoothing agent to improve surface qualities of the film during extrusion. Forte lists Viton® fluoroelastomers as examples of such surface-smoothing agents, and indicates they are used in very small concentrations (up to about 10,000 ppm, or 1%). Forte then goes on to state:

> "These free flow agents can also be used in the microporous core and microporous adhesive layers. Specific examples of suitable flow agents that can be used in the *microporous* layers include Ampacet LR-86769 (3% Viton A in 97% Hexene LLDPE) and Ampacet LR-88249 (3% Viton A in 97% Octene LLDPE) which are manufactured by Ampacet."

(Col. 7, lines 12-18, emphasis added.)

Forte thus does not state that the outer monolithic layers can include the Ampacet flow agents, but states only that the *microporous* layers can include them. Apparently Forte contemplates employing the Viton fluoroelastomer agents for the outer layers, and the Ampacet agents for the microporous layers. Therefore, contrary to the Advisory Action, Forte does not explicitly teach including any LLDPE in the outer layers of the film.

However, even if Forte were construed as somehow suggesting the use of the Ampacet free-flow agents in the outer layers, the concentration of the agent in the outer layers is not mentioned. It could be presumed, perhaps, that a concentration similar to that for the Viton® fluoroelastomer can be used, but that concentration is only 1% or less.

Forte certainly does not teach or suggest that LLDPE can comprise a primary polymer present in at least about 20% by weight of the composition forming the outer layers, as currently claimed.

Thus, Forte fails to teach or suggest (alone or in combination with Antoon, Jr.) a multilayer film as claimed, having heat-sealable outer layers formed of a heat sealable composition comprising at least one of polyolefin, ethylene vinyl acetate, ethylene methyl acrylate, ethylene butyl acrylate, ethylene methyl acid and ionomer as a primary polymer, wherein the primary polymer is present in the heat sealable composition in an amount of at least about 20 weight percent.

Therefore, Forte, even if modified by Antoon, Jr., fails to disclose all of the elements of the claims.

Claim 10:

Furthermore, with respect to Claim 10, the combination of Forte and Antoon, Jr., even if made, fails to disclose or suggest a multilayer film having first and second outer layers and a center layer each independently comprising a heat sealable composition comprising at least one of polyolefin, ethylene vinyl acetate, ethylene methyl acrylate, ethylene butyl acrylate, ethylene methyl acid and ionomer as a primary polymer present in an amount of at least about 20 weight percent.

Conclusion

For the reasons set forth above, the rejections of record are clearly erroneous. Accordingly, Applicant respectfully requests the rejections be reversed.

8. ***Claims Appendix.***

An appendix containing a copy of the claims involved in the appeal is attached.

9. ***Evidence Appendix.***

N/A

10. ***Related Proceedings Appendix.***

N/A

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APPENDIX – CLAIMS ON APPEAL

1. An oxygen-permeable multilayer film comprising:

an oxygen-permeable first heat-sealable outer layer;

an oxygen-permeable second heat-sealable outer layer; and

at least one oxygen-permeable intermediate microporous layer disposed between said first and second heat-sealable outer layers,

said first and second heat-sealable outer layers independently formed from heat sealable composition comprising at least one of polyolefin, ethylene vinyl acetate, ethylene methyl acrylate, ethylene butyl acrylate, ethylene methyl acid and ionomer as a primary polymer, wherein the primary polymer is present in the heat sealable composition in an amount of at least about 20 weight percent, and said intermediate microporous layer formed from an oxygen impermeable composition and being free of particulate filler.

2. A multilayer film according to Claim 1, wherein said heat sealable composition exhibits an oxygen transmission rate that is at least about 50 cc-mil/100 in^2-24 hr-atm @ std.temp. higher than said oxygen impermeable composition.

3. A multilayer film according to Claim 1, wherein said oxygen impermeable composition exhibits a melting point that is at least about 5 °C higher than said heat sealable composition.

4. A multilayer film according to Claim 1, wherein said oxygen impermeable composition exhibits a modulus that is at least about 5,000 psi higher than said heat sealable composition.

5. A multilayer film according to Claim 1, wherein said oxygen impermeable composition comprises at least one of polyethylene homopolymer, polypropylene homopolymer, ethylene/alpha-olefin copolymer, propylene/alpha-olefin copolymer, ethylene/unsaturated ester

copolymer, styrene homopolymer or copolymer, and polyester homopolymer or copolymer as a primary polymer.

6. A multilayer film according to Claim 1, wherein said oxygen impermeable composition comprises polypropylene/alpha-olefin copolymer as a primary polymer.

7. (Canceled)

8. A multilayer film according to Claim 1, wherein said heat sealable composition comprises an ethylene/alpha olefin copolymer as a primary polymer.

9. A multilayer film according to Claim 1, wherein said heat sealable composition comprises linear low density polyethylene as a primary polymer.

10. An oxygen-permeable multilayer film comprising:

an oxygen-permeable first heat-sealable outer layer;

an oxygen-permeable second heat-sealable outer layer;

an oxygen-permeable center layer;

an oxygen-permeable first intermediate microporous layer disposed between said first heat-sealable outer layer and said center layer; and

an oxygen-permeable second intermediate microporous layer disposed between said second heat-sealable outer layer and said center layer,

said first and second heat-sealable outer layers and said center layer each independently comprising a heat sealable composition comprising at least one of polyolefin, ethylene vinyl acetate, ethylene methyl acrylate, ethylene butyl acrylate, ethylene methyl acid and ionomer as a primary polymer, wherein the primary polymer is present in the heat sealable composition in an amount of at least about 20 weight percent, and said first and second intermediate microporous layers each independently comprising an oxygen impermeable polymer composition and each being free of particulate filler.

11. A multilayer film according to Claim 10, wherein said oxygen impermeable polymer composition comprises propylene/alpha olefin copolymer as a primary polymer.

12. A multilayer film according to Claim 10, wherein said heat sealable composition comprises an ethylene/alpha-olefin copolymer as a primary polymer.

13. A multilayer film according to Claim 10, wherein said heat sealable composition comprises linear low density polyethylene as a primary polymer.

14. A package comprising:

(a) an oxygen-sensitive product; and

(b) an oxygen-permeable multilayer film comprising

(i) an oxygen-permeable first heat-sealable outer layer formed from a heat sealable composition comprising at least one of polyolefin, ethylene vinyl acetate, ethylene methyl acrylate, ethylene butyl acrylate, ethylene methyl acid and ionomer as a primary polymer;

(ii) an oxygen-permeable second heat-sealable outer layer formed from a heat sealable composition comprising at least one of polyolefin, ethylene vinyl acetate, ethylene methyl acrylate, ethylene butyl acrylate, ethylene methyl acid and ionomer as a primary polymer, wherein the primary polymer is present in the heat sealable composition in an amount of at least about 20 weight percent; and

(iii) at least one oxygen-permeable intermediate microporous layer disposed between said first and second heat-sealable outer layers, said intermediate microporous layer formed from an oxygen impermeable composition and being free of particulate filler.

15. A package according to Claim 14, wherein said multilayer film substantially surrounds said oxygen-sensitive product.

16. A package according to Claim 14, wherein said oxygen-sensitive product comprises at least one foodstuff selected from the group consisting of meat, dairy products, fruits and cut vegetables.

17. A package according to Claim 14, wherein said multilayer film is lidding stock.

18-23. (Canceled)